Le Centre canadien de recherche
sur l'informatisation du travail

Canadian Workplace
Automation Research Centre

Canada

OVERVIEW

The growing use of telecommunications and computer systems in the workplace is gradually transforming today's office. Through such developments as electronic information flow, systems interconnection and artificial intelligence, tasks that were formerly distinct are being joined and transformed, changing the shape of organizations.

CREATION OF THE CENTRE

The establishment of the Canadian Workplace Automation Research Centre (CWARC) represents a significant step by the federal government to respond to the needs of users of new workplace automation applications. The Centre, which opened on November 5, 1985, is affiliated with the Telecommunications and Technology Sector of the Department of Communications and will act as a catalyst for technological developments in this important area.

ADVISORY BOARD

The Minister of Communications has formed an advisory board to set the Centre's priorities. Composed of 15 members from universities, industry and the public sector, the Board advises the Assistant Deputy Minister for Telecommunications and Informatics on workplace automation research programs.

OBJECTIVES

The Centre has set the following objectives:

- to provide leadership in applied research into computerized office systems and to utilize the related potential for enhanced productivity in the public and private sectors;

- to synthesize the needs of users and contribute to problem-solving;

- to become the focal point of information exchange in the field of workplace automation;

- to foster co-operation between experts and different client groups.

CLIENTELE

The Canadian Workplace Automation Research Centre serves a varied clientele, made up of users of computerized office systems, decision-makers in the private and public sectors, as well as specialists and research workers, for whom the many types of inter-related technological applications available represent an element of progress.

RESEARCH AREAS

After extensive consultation with private industry, universities and other federal government departments, the Centre has identified three different research areas, which are reviewed on an ongoing basis. This led to the establishment of the following directorates:

- Organizational Research Directorate

- Integrated Systems Directorate

- Advanced Technology Directorate.

ORGANIZATIONAL RESEARCH DIRECTORATE

The Organizational Research Directorate is concerned with experimental research social science applied to integrated office communications systems. The scope of organizational research also encompasses such environmental sciences as ergonomics.

The directorate concentrates its research on four areas:

- bilingual and multilingual systems;
- electronic information flow and the adaptation of people and organizations;
- organizational methods and structures in the workplace;
- organizational productivity and performance.

BILINGUAL AND MULTILINGUAL SYSTEMS

Research will be directed towards the scientific and practical understanding of the problems caused by the use of unilingual English software in bilingual and multilingual working environments.

Efforts in this field will also lead to a functional definition of the technical, socio-cultural and cognitive levels of "multilingual software design", so as to provide users with concrete reference points. This will be of use in evaluating the development costs of multilingual software compared with unilingual programs.

A further objective will be the development of standards applicable to governments, software developers and multilingual users.

ELECTRONIC INFORMATION FLOW AND THE ADAPTATION OF PEOPLE AND ORGANIZATIONS

Research will determine the types of networks with the best potential to improve the efficiency of organizations and individuals, and the associated costs.

Various projects will seek to identify user needs in terms of electronic information flow. The prerequisites for individual adaptation and group effectiveness through networks will be pinpointed. Hence, the optimal characteristics of networks in terms of client type and the state of the art will be determined. The findings will help to specify the current and future role of networks in increasing the productivity of individuals and organizations.

ORGANIZATIONAL METHODS AND STRUCTURES IN THE WORKPLACE

Research will be concerned with creating and testing the best tools and techniques for strategic planning, introducing new technology, and evaluating projects. It will also be concerned with field observation of the changing nature of tasks and with compiling a collection of useful knowledge.

To focus the research plan, special attention will be paid to integrating the findings, transferring this knowledge to other sites and making judicious use of client feedback.

ORGANIZATIONAL PRODUCTIVITY AND PERFORMANCE

Priority will be given to developing tools for performance measurement, especially for "non-structured" work, and to learning to better measure the performance of organizations as systems.

Research projects will focus on the development of transferable models and methodological tools, as well as the refinement of tools for the macro-economic and technological analysis of trends in the information sector, thereby providing context for organizational performance analysis.

INTEGRATED SYSTEMS DIRECTORATE

The 1960s saw the merging of telecommunications and computing techniques, a marriage which came to be termed "computer communications." Today this trend is accelerating and we are seeing the emergence of integrated systems of information processing and communications hardware and software.

R&D work in integrated office systems focuses on different aspects of the concept of integration. Firstly, it is aimed at better integrating multiple functions in the same workstation, especially in the interactive mode; developing systems designs and applications to integrate existing technologies more efficiently; and looking ahead to incorporating developing technologies. Secondly, it is concerned with systems interconnection in order to permit effective access to and exchange of information through local area and large-scale networks. Efforts in this area focus mainly on the performance of local networks, the design and use of gateways and interfaces to switch between them and link into communications networks.

The main thrust of these research efforts is the area of open systems interconnection protocols, including specifications, installation and tests for compliance with international standards.

ADVANCED TECHNOLOGY DIRECTORATE

The overall thrust of current research into fifth-generation computers is to develop machines with the intelligence to perform increasingly complex tasks. In the medium term, intelligent workstations will be central to an increase in productivity and efficiency in the office. Computer-assisted translation and expert systems and data management are of special interest in this field.

COMPUTER-ASSITED TRANSLATION

Through its R&D work in computer-assited translation, the Centre pursues three objectives:

- to contribute to the development of a specialized work station offering a variety of tools to the translator;
- to promote the automation of translation in limited areas;
- to participate in research to produce increasingly intelligent translation systems.

EXPERT SYSTEMS AND DATA HANDLING

Information handling and processing is at the core of office automation. The Centre is studying the integration of management databases into expert and problem-solving systems.

The development of specialized software for management support is a major research objective in this area. Work will be concerned with adapting off-the-shelf computer equipment to increasingly complex functions; such as document preparation, archiving, file management and retrieval.

EXTERNAL CO-OPERATION DIRECTORATE

Supporting the research directorates, the External Co-operation Directorate facilitates liaison between the Centre's various client groups for information and knowledge transfer and serves as a channel between the client groups and experts in the field.

SCIENTIFIC INFORMATION NETWORK

Consultation with private industry, public sector decision-makers and research workers in the field of office automation have pointed to a common expectation: the establishment of a scientific and strategic information network.

CWARC has responded to this need by establishing the parameters of a network to share expertise and knowledge in relation to target clienteles. The two products of this project will be:

- establishement of a resource centre offering documentation, archival and tele-reference services;

- establishement of data banks to compile information on: experts in the field of office automation, research projects on a national scale with an impact in the field of telematics and office automation, and institutions and organizations involved in research on the various aspects of workplace automation.

This two-fold role will allow the Centre to become a focal point for the collection and dissemination of information for this area.

NATIONAL EXCHANGE PROGRAM

The Centre has taken an innovative approach to the recruitment of scientific staff through personnel exchanges. Experts from public, private or university organizations or institutions are seconded to CWARC for periods ranging from six months to three years, to participate in research into the technological applications of office automation.

This innovative recruitment process enhances the results of applied research and facilitates the ongoing efficient transfer of expertise and know-how.

Participation in this national program is subject to the following conditions:

- the seconded employee must be a member of an organization incorporate in Canada or an academic institution with a demonstrated interest in the field of workplace automation;

- the sponsor organization must commit itself to re-instating the employee at the end of the period of secondment;

- the sponsor organization must indicate that Canadians will benefit from the results of the research and must also agree to make the results public.

Financial contributions to partner organizations and cost-sharing agreements are negotiated separately. The Centre's contribution mainly covers the salaries and fringe benefits of seconded personnel. Under no circumstances may the contribution constitute a profit for partner organizations.